



The Weather Whisper

A Record Setting December Storm

Andrew Ansorge, Lead Meteorologist

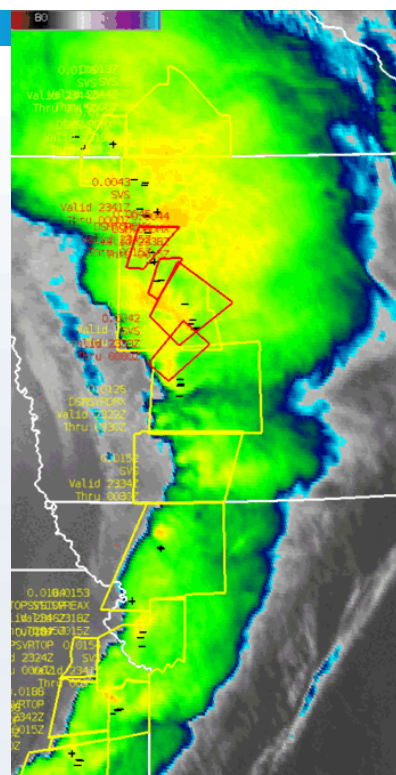
The first derecho in December anywhere in the United States, the first moderate risk of severe thunderstorms in December in Iowa since known records, unofficially the most tornadoes in Iowa in a single day and most EF-2/F-2 or stronger in Iowa in a single day since 1950, and preliminarily breaking the all-time December record high temperature for Iowa are just a few reasons why the December 15, 2021 event is unprecedented and a historic event for the state of Iowa.

The main feature was a powerful low pressure that rapidly moved from the Colorado Rockies into Siouxland and eventually over western Lake Superior on December 15, 2021. Gusty, environmental winds preceded a line of severe thunderstorms, which produced numerous tornadoes and thunderstorm wind gusts across the state and region. As of December 23, 2021, there are at least 43 confirmed tornadoes that occurred in Iowa with 17 of those tornadoes being rated EF-2. Forty-three tornadoes is unofficially the most tornadoes in Iowa in a single day with the previous being 35 tornadoes on August 31, 2014 ([2014 Iowa Tornadoes](#) | [Journal Article](#)). Further, 17 EF-2 tornadoes is unofficially the most EF-2/F-2 or stronger tornadoes in a single day with the previous being 16 tornadoes on June 7, 1984 ([Tornado Tracks](#) | [NOAA Technical Memo](#)). Prior to this event, a total of 5 tornadoes had occurred in Iowa in December since 1950 with all of them in southeastern Iowa. To have nearly seven times that many tornadoes in one day occur across the state is unprecedented in any month let alone the month of December. Straight line wind gusts associated with these thunderstorms were in excess of 80 mph with Audubon reporting the highest gust in Iowa at 88 mph. This storm also met the criteria for a derecho, which makes it the first derecho on record in the month of December anywhere in the United States.

After the line of storms had passed, numerous strong, non-thunderstorm wind gusts over 70 mph occurred overnight. The top three non-thunderstorm wind gusts were 83 mph in Decatur City, 81 mph in Marshalltown, and 80 mph in Johnston. The Des Moines International Airport recorded a 74 mph non-thunderstorm wind gust, which is the highest non-thunderstorm wind gust at this location since 1970.

In addition to the severe weather and strong non-thunderstorm winds, the temperatures were remarkable and record setting. Numerous record daily highs were broken and by many degrees at that. In addition and preliminarily, the all-time December record high temperature for Iowa of 74 degrees that was set in Thurman, IA on December 6, 1939 was broken with four sites reaching 75 degrees (Oskaloosa, Muscatine, Iowa City, and Ottumwa).

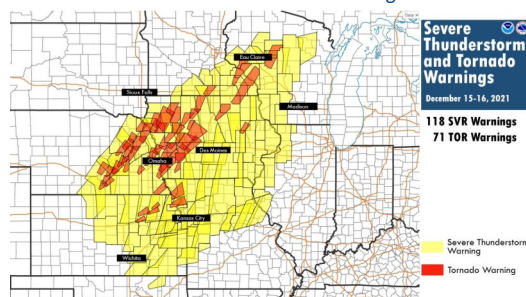
Additional damage reports and analysis of satellite imagery are ongoing to refine current tornado paths and investigate and search for possible additional tornadoes. To keep updated on current records and added information, monitor the [event summary](#) on our webpage. This page has a plethora of information on the tornadoes, winds, and temperature records, plus photos and videos, environmental data, and historical comparisons.



Satellite imagery and NWS warnings from 5:45pm on Dec. 15, 2021. Click for full sized animated loop.

Special points of interest

- Farewell to two NWS Des Moines employees
- Winter Weather Training
- Winter Storm to Ring in 2022



National Weather Service Severe Thunderstorm and Tornado Warnings issued December 15-16, 2021



The operations floor at NWS DMX shortly before storms developed. 4 additional people were added before the event ended.

Winter Weather Virtual Training Session

Andrew Ansorge, Lead Meteorologist

When one thinks of spotter training, thunderstorms and tornadoes likely come to mind first. However, snow and ice and their reports to the National Weather Service are equally important for forecasts and warnings. That is why in mid-December, our office held an online session of winter weather spotter training.

The hour or so interactive training had several themes: climatology, forecasting, warning, and communicating winter weather events, and measuring winter precipitation. Climatology focused on several central Iowa cities and provided information on normal winter snowfall as well as the highest and lowest snowfall amounts in a winter. In addition, the average number of winter weather warnings and advisories were highlighted across Iowa.

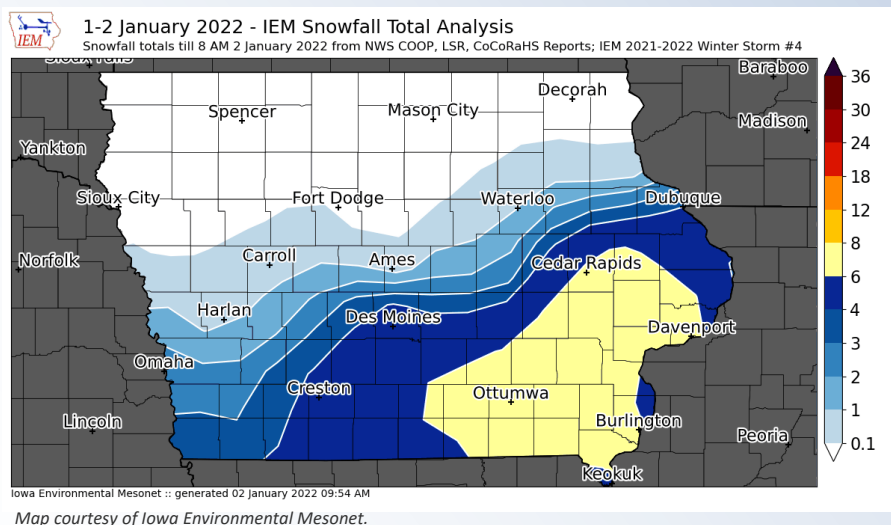
The next theme started with the different types of winter precipitation and the challenges of forecasting a winter storm, which include the amount of moisture, temperatures in the atmosphere, and track of the storm. After the forecast has been created, a watch, warning, or advisory may be issued and the criteria and differences between these were discussed. Of course, communicating the forecast and any watches, warnings, or advisories is important so the public and partners can take appropriate action. So, the final theme discussed having trustworthy sources of weather information such as the National Weather Service, local radio and TV partners, and others such as emergency management. Finally, we walked through how to measure snow and ice. This included good locations to measure snow and what to do when there is blowing snow that doesn't create a uniform snow accumulation to how to calculate ice thickness.

If you have snow or ice reports you'd like to send to us this winter season, they can be sent to our Facebook page (facebook.com/NWSDesMoines), tweeting to [@NWSDesMoines](https://twitter.com/NWSDesMoines), or emailing us at dmx.spotterreport@noaa.gov.



Winter Storm to Ring in 2022

Brooke Hagenhoff, Meteorologist



reported 5.5", just over 10 miles apart. The [Climate Prediction Center](https://climatepredictioncenter.com) has the area outlooked for chances at "Below Average" temperatures for the month of January as winter settles in.

2022 roared in like a lion. After a remarkably warm December statewide, the previously mentioned record-setting tornado outbreak, and the 3rd lowest seasonal snowfall on record for the Des Moines area, New Year's Day 2022 brought several inches of snow to southern and central Iowa with wind chills dropping to -20 to -30 and even lower. The storm produced a very sharp gradient in snowfall amounts on the northern edge of the system and accumulations changed by 3-5 inches over short distances. For example, in Polk County an NWS employee reported 2.1" at their home just north of the Des Moines Airport

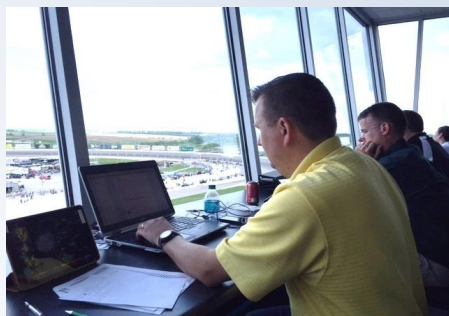
Farewell to Meteorologist Ken Podrazik and Electronics Technician Chris Southerlin



Electronics Technician Christopher Southerlin departed to Salt Lake City, UT to serve as Assistant Electronic Systems Analyst. Christopher has been at NWS Des Moines since May 2009, Christopher is originally from Jefferson City, MO, however he attended university at the University of Alaska - Anchorage. He began his federal career in 2006 with the Federal Aviation Administration, NW AK Region. During his time with NWS Des Moines, Christopher has played an integral role in electronic systems, information technology, and facilities maintenance activities while also serving as the Safety & Environmental Focal Point.



From Meteorologist (and former newsletter editor) Ken Podrazik: *"My time has come to depart beloved central Iowa. I'll be transferring to Kansas City to work with the Center Weather Service Unit (CWSU) in the first part of January 2022. This is a bittersweet move as I've lived in Iowa since 2007 with my beautiful wife Tabatha in the booming metropolis of Grimes. We have had the wonderful opportunity to raise two amazing boys, made some great lifelong friends, and seen many of the wonderful things Iowa has to offer. Plus not to mention experiencing the crazy Iowa weather. It's been a great pleasure working with my coworkers and I'll certainly miss the friendships, comradery, and stories from working the crazy hours we work. I'll also miss working with the various partners and public in central Iowa, you definitely make the job rewarding. Thank you and Happy New Year!"*



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